

REMARKS

This paper is being provided in response to the Office Action dated March 13, 2009, for the above-referenced application. In this response, Applicants have amended claims 17-19, 21-27 and 29-32 and added new claims 33-40 to clarify that which Applicants consider to be the presently-claimed invention. Applicants respectfully submit that the amendments to the claims and the new claims are fully supported by the originally-filed specification, consistent with the discussion herein.

The rejections of claims 17-32 under 35 U.S.C. 112, second paragraph, as set forth on pages 2-7 of the Office Action have all been addressed by amendments contained herein in accordance with the guidelines set forth in the Office Action. Accordingly, Applicants respectfully request that the rejections be reconsidered and withdrawn.

The rejection of claims 17 and 25 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,090,011 to Fukuta (hereinafter "Fukuta") in view of U.S. Patent No. 5,400,329 to Tokura (hereinafter "Tokura") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

Independent claim 17, as amended herein, recites a station for receiving a message from a first interconnected station on an input side and transmitting message information relating to the received message to a second interconnected station on an output side. Response means is included for returning a response to a request to receive and accept the message, the request being sent from the first interconnected station. Congestion detection means is coupled to the

response means and is for detecting that congestion has occurred in the second interconnected station, wherein, when occurrence of congestion is detected by said congestion detection means, said response means conducts congestion control by delaying the response to the request to receive and accept said message from the first interconnected station for a prescribed delay time. Claims 18-24 and new claim 34 depends directly or indirectly from independent claim 17.

Independent claim 25, as amended herein, recites a station for receiving a message from a first interconnected station on an input side and transmitting message information relating to the received message to a second interconnected station on an output side. Response means is included for returning a response to a request to receive and accept the message, the request being sent from the first interconnected station. Congestion detection means is coupled to the response means and which detects the occurrence of congestion in the station when the filling ratio in a buffer memory that stores said messages or received requests that have not been completely processed exceeds a prescribed filling ratio, wherein, when the occurrence of congestion in the station is detected by said congestion detection means, said response means conducts congestion control by delaying the response to the request to receive and accept said message from the first interconnected station. Claims 26-33 depend directly or indirectly from independent claim 25.

Fukuta discloses a packet congestion control method and packet switching equipment. When a packet congestion is detected in association with any one of a plurality of output lines, a congestion indicator is added to a packet to be delivered to the output line so as to return the packet as a congestion notice packet to the transmission source equipment, and the input packet

is relayed via the output line to the destination equipment. (See, e.g., Fig. 12, 13 and 16 of Fukuta.)

Tokura discloses a packet network and method for congestion avoidance in packet networks. The Office Action cites to Tokura as disclosing delay for transmitting data according to a destination appointed shorter window width and decreasing a transfer rate by setting a packet transmission interval, citing to col. 10, lines 18-27 and FIGS. 1A-C and 2A-C of Tokura.

Applicants note that in the transmission of multimedia messages, in particular, in a PPG (Push Proxy Gateway) which is used to transfer an MMS message to a portable terminal, the communication with the SMSC (Short Message Service Center) is conducted with the communications protocol called SMPP (Short Message Peer-to-Peer), but flow control in the SMPP is not clearly defined and the protocol is considered to be unable to prevent or eliminate the appearance of congestion autonomously as a processing system. (See, for example, page 3, line 23 to page 4, line 10 of the originally-filed specification). Applicants' presently-claimed invention addresses these issues and recites a station having at least one upstream station (first interconnected station) and at least one downstream station (second interconnected station). In particular, under Applicant's claimed system, the rate at which messages are transmitted from the upstream station is controlled by a response sent from the station to a Receive & Accept request from the upstream station. The station detects congestion at the downstream station and, in response to the detection of congestion downstream, the station delays the response sent to the upstream station in response to the Receive & Accept request. (See, for example, page 4, line 18 to page 5, line 11 and Fig. 4 of the originally-filed specification.)

In Fukuta, a response is only sent upstream when congestion (or clearance of the congestion) is identified by the packet switch. As shown, for example, in the embodiment of Fig. 16, the transmitting Packet Terminal Equipment 50a (analogous to "an interconnecting station on the input side" according to the Examiner) stops sending the packets in response to a congestion notice, and then periodically polls the congested switch until a congestion cease notice packet is received in response. In contrast, in the presently-claimed invention, each packet is acknowledged and it is then by delaying this acknowledgement that the packet data rate can be controlled. Specifically, Applicants recite that when occurrence of congestion is detected by said congestion detection means, said response means conducts congestion control by delaying the response to the request to receive and accept said message from the first interconnected station for a prescribed delay time. Applicants have found that an advantage of Applicants' claimed features is that the congestion message does not need to propagate all the way back up the chain to the original source of the packet (as in Fukuta), but instead advantageously manages congestion in the region of the congestion.

The Office Action (pages 11-12) states the Fukuta is suggestive of "an existence of some sort of delay but is silent about a delay specified by Station with a prescribed time interval." The Office Action refers to Fukuta's references to "POLLING" during a "CONGESTION PERIOD". However, Applicants that Fukuta's discussion of polling during a congestion period does not teach or fairly suggest the congestion control by delaying a response to the request to receive and accept said message for a prescribed delay time. Applicants particular note that Fukuta's system is specifically designed to avoid the use of an acknowledgment packet or a monitoring packet.

As stated by Fukuta at col. 2, lines 36-40: "It is therefore an object of the present invention to respond to congestion in a packet switch by identifying the congestion to the packet communication equipment without using an acknowledgment packet or a monitoring packet." Thus, not only does Fukuta not disclose features involving delay, like that which are recited by Applicants, but further teaches away from the use of an acknowledgement packet or monitoring packet with respect to congestion.

Applicants submit that the addition of Tokura does not overcome the above-noted deficiencies of Fukuta with respect to the presently-claimed invention. The Office Action cites to Tokura's disclose of setting a packet transmission interval to control a packet transfer rate. However, Tokura is silent as any disclosure of controlling congestion by delaying the response to the request to a receive and accept said message from the first interconnected station for a prescribed delay time, as is recited by Applicants. That is, like Fukuta, Tokura's system does not provide that a packet is acknowledged and it is then by delaying this acknowledgement that the packet data rate can be controlled, as is recited by Applicants. As discussed above, the advantage of a system like that recited by Applicants is that that information about congestion does not need to propagate all the way back up the chain to the original source of the packet before the congestion is addressed, and instead, according to Applicant's presently-claimed invention, congestion is managed in the region of the congestion through the delaying of a response back to the original source of the packet concerning receipt and acceptance of the message.

Accordingly, Applicants respectfully submit that neither Fukuta nor Tokura, taken alone or in combination, teach or fairly suggest at least the above-noted features as claimed by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 19, 20, 27 and 28 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of JP 2002-185500 to Shozo (hereinafter "Shozo") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17 and 25 are discussed above with respect to Fukuta and Tokura. Claims 19, 20, 27 and 28 depend therefrom.

Shozo discloses a communication system and determining method for setting and updating proper alternative routes in a standard network system for eliminating congestion. The Office Action cites to Shozo in connection with features involving switching means and the use of a plurality of interconnecting stations, citing to paragraphs 0016-0025 of Shozo.

Applicants respectfully submit that Shozo does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention. Shozo does not disclose, nor is Shozo cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura. Accordingly, Applicants respectfully submit that Fukuta, Tokura and Shozo, taken alone or in any

combination, do not teach or fairly suggest at least the above-noted features as recited by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 21, 22, 29 and 30 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of SMS Forum, "Short Message Peer to Peer Protocol Specification" (hereinafter "SMS Forum") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17 and 25 are discussed above with respect to Fukuta and Tokura. Claims 21, 22, 29 and 30 depend therefrom.

SMS Forum discloses a short message peer-to-peer (SMPP) protocol. The Office Action cites to as disclosing flow control and congestion avoidance including the use of an error and/or a parameter concerning a congestion state, citing principally to page 43 of SMS Forum.

Applicants respectfully submit that SMS Forum does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention. SMS Forum does not disclose, nor is SMS Forum cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura. Accordingly, Applicants respectfully submit that Fukuta, Tokura and SMS Forum, taken alone or in any combination, do not teach or fairly suggest at least the above-noted features as recited by

Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 18, 23, 24, 26, 31 and 32 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of U.S. Patent No. 5,757,772 to Thornberg (hereinafter "Thornberg") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17 and 25 are discussed above with respect to Fukuta and Tokura. Claims 18, 23, 24, 26, 31 and 32 depend therefrom.

Thornberg discloses a method and system for packet switched radio channel traffic supervision. The Office Action cites to Thornberg as disclosing congestion evaluation use average response times and margin ratios, citing principally to col. 2, lines 18-31, col. 16, lines 47-57 and FIGS. 8A and 11 of Thornberg.

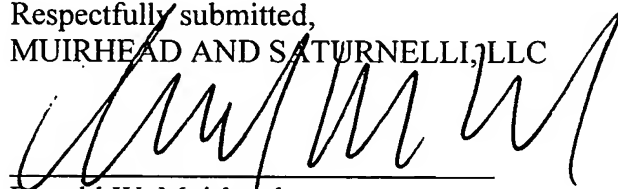
Applicants respectfully submit that Thornberg does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention. Thornberg does not disclose, nor is Thornberg cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura. Accordingly, Applicants respectfully submit that Fukuta, Tokura and Thornberg, taken alone or in any combination, do not teach or fairly suggest at least the above-noted features as recited by

Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Further, Applicants have added new claims 33-40 and submit that, in accordance with the above-noted remarks, these claims are also patentable over the cited prior art.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
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Date: May 26, 2009

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